

**IN THE CLAIMS**

*Please amend the claims as follows:*

1. (Currently Amended) A Luneberg lens having a single-layer structure or a multilayer structure containing a plurality of layers having different dielectric constants,

wherein the respective structure is produced by mixing a polyolefin resin and/or a derivative thereof with an inorganic filler having a high dielectric constant, the volume ratio of the polyolefin resin and/or the derivative thereof to the filler being 99 to 50:1 to 50, adding a foaming agent to the resulting resin mixture and then performing preliminary expansion, and molding the resulting pre-expanded beads;

and wherein at least a foamed dielectric layer having a dielectric constant of 1.5 or more is formed using the pre-expanded beads that have been ~~subjected to classification and selection~~ classified by gravity separation such that  $f(A)$  satisfies the expression  $0.0005 \leq f(A) \leq 0.1$ , where  $f(A)$  is represented by the equation:  $f(A) = \sigma a / A_{ave}$ ,  $\sigma a$  is the deviation of a gas volume fraction  $A_r$  in the foamed dielectric layer, and  $A_{ave}$  is the average of the gas volume fractions  $A_{rs}$  at positions in the foamed dielectric layer.

2. (Previously Presented) The Luneberg lens according to claim 1, wherein the inorganic filler having a high dielectric constant comprises a titanate.

3. (Original) The Luneberg lens according to claim 2, wherein the titanate is barium titanate, strontium titanate, calcium titanate, or magnesium titanate.

4. (Cancelled)

5. (Withdrawn) A method of producing a Luneberg lens that satisfies the requirements described in claim 1, comprising the steps of:

mixing a polyolefin resin and/or a derivative thereof with an inorganic filler having a high dielectric constant, the volume ratio of the polyolefin resin and/or the derivative thereof to the filler being 99 to 50:1 to 50;

adding a foaming agent to the resulting resin mixture and then performing pre-expansion;

classifying and selecting the resulting pre-expanded beads by gravity separation or size classification; and

forming the classified and selected pre-expanded beads into a shape.

6. (New) A Luneberg lens having a single-layer structure or a multilayer structure containing a plurality of layers having different dielectric constants,

wherein the respective structure is produced by mixing a polyolefin resin and/or a derivative thereof with an inorganic filler having a high dielectric constant, the volume ratio of the polyolefin resin and/or the derivative thereof to the filler being 99 to 50:1 to 50, adding a foaming agent to the resulting resin mixture and then performing preliminary expansion, and molding the resulting pre-expanded beads on condition that the concentration of the inorganic filler is within a range of  $\pm 0.5\%$  with reference to the designed concentration; and

at least a foamed dielectric layer having a dielectric constant of 1.5 or more is formed using the pre-expanded beads that have been classified by gravity separation or size classification such that  $f(A)$  satisfies the expression  $0.0005 \leq f(A) \leq 0.1$ , where  $f(A)$  is represented by the equation:  $f(A) = \sigma_a / A_{ave}$ ,  $\sigma_a$  is the deviation of a gas volume fraction  $A_r$  in

**Application No.: 10/548,405**

the foamed dielectric layer, and  $A_{ave}$  is the average of the gas volume fractions  $A_{rs}$  at positions in the foamed dielectric layer.